

S-BSM10

Code(d) 623570

Code(e) 625568

Refractive Index n_d	1.622 80 1.622 799	Abbe Number ν_d	57.05	Dispersion $n_F - n_C$	0.010 916
Refractive Index n_e	1.625 401	Abbe Number ν_e	56.78	Dispersion $n_{F'} - n_{C'}$	0.011 014

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.592 71
n_{1970}	1.970 09	1.598 09
n_{1530}	1.529 58	1.603 86
n_{1129}	1.128 64	1.608 98
n_t	1.013 98	1.610 69
n_s	0.852 11	1.613 68
$n_{A'}$	0.768 19	1.615 73
n_F	0.706 52	1.617 61
n_C	0.656 27	1.619 49
$n_{C'}$	0.643 85	1.620 01
n_{He-Ne}	0.632 8	1.620 51
n_D	0.589 29	1.622 70
n_d	0.587 56	1.622 80
n_e	0.546 07	1.625 40
n_F	0.486 13	1.630 41
$n_{F'}$	0.479 99	1.631 03
n_{He-Cd}	0.441 57	1.635 58
n_g	0.435 835	1.636 37
n_h	0.404 656	1.641 33
n_i	0.365 015	1.649 80

Constants of Dispersion Formula	
A_1	9.454 430 81E-01
A_2	6.432 373 76E-01
A_3	1.177 529 68E+00
B_1	1.572 637 98E-02
B_2	1.619 240 66E-03
B_3	1.213 617 48E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	3
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	51.2
Phosphate Resistance PR	1.0

Mechanical Properties	
Young's Modulus E (GPa)	83.5
Rigidity Modulus G (GPa)	33.0
Poisson's Ratio σ	0.266
Knoop Hardness Hk[Class]	570 6
Abrasion Aa	134

Partial Dispersions	
$n_C - n_t$	0.008 800
$n_C - n_{A'}$	0.003 759
$n_d - n_C$	0.003 310
$n_e - n_C$	0.005 912
$n_g - n_d$	0.013 570
$n_g - n_F$	0.005 964
$n_h - n_g$	0.004 960
$n_i - n_g$	0.013 428
$n_{C'} - n_t$	0.009 326
$n_e - n_{C'}$	0.005 386
$n_{F'} - n_e$	0.005 628
$n_i - n_{F'}$	0.018 768

Relative Partial Dispersions	
$\theta_{C,t}$	0.806 2
$\theta_{C,A'}$	0.344 4
$\theta_{d,C}$	0.303 2
$\theta_{e,C}$	0.541 6
$\theta_{g,d}$	1.243 1
$\theta_{g,F}$	0.546 4
$\theta_{h,g}$	0.454 4
$\theta_{i,g}$	1.230 1
$\theta'_{C,t}$	0.846 7
$\theta'_{e,C'}$	0.489 0
$\theta'_{F',e}$	0.511 0
$\theta'_{i,F'}$	1.704 0

Anomalous dispersion	
$\Delta\theta_{C,t}$	-0.008 2
$\Delta\theta_{C,A'}$	-0.000 6
$\Delta\theta_{g,d}$	-0.003 1
$\Delta\theta_{g,F}$	-0.002 8
$\Delta\theta_{i,g}$	-0.017 2

Coloring			
λ_{80}	350	λ_5	305
λ_{70}			
Internal transmission			
$\lambda_{0.80}$	345	$\lambda_{0.05}$	309
CCI			
B	G	R	
0.00	0.17	0.15	

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	0.08
320	0.31
330	0.57
340	0.75
350	0.86
360	0.929
370	0.962
380	0.977
390	0.986
400	0.991
420	0.994
440	0.995
460	0.996
480	0.997
500	0.998
550	0.998
600	0.998
650	0.997
700	0.998
800	0.998
900	0.998
1 000	0.997
1 200	0.997
1 400	0.990
1 600	0.993
1 800	0.985
2 000	0.971
2 200	0.913
2 400	0.82

Thermal Properties	
Strain Point StP (°C)	622
Annealing Point AP (°C)	650
Transformation Temperature Tg (°C)	674
Yield Point At (°C)	724
Softening Point SP (°C)	773
Expansion Coefficients (-30 °C ~ 70 °C)	65
α_i (10 ⁻⁷ K ⁻¹) (100 °C ~ 300 °C)	77
Thermal Conductivity λ (W/(m·K))	0.822

Linear coefficient of thermal expansion	
Temperature range (°C)	α_i (10 ⁻⁷ K ⁻¹)
-100 ~ -90	54
-90 ~ -80	55
-80 ~ -70	56
-70 ~ -60	57
-60 ~ -50	58
-50 ~ -40	59
-40 ~ -30	60
-30 ~ -20	61
-20 ~ -10	62
-10 ~ 0	63
0 ~ 10	64
10 ~ 20	65
20 ~ 30	66
30 ~ 40	66
40 ~ 50	67
50 ~ 60	68
60 ~ 70	69
70 ~ 80	70
80 ~ 90	70
90 ~ 100	71
100 ~ 110	72
110 ~ 120	73
120 ~ 130	73
130 ~ 140	74
140 ~ 150	74
150 ~ 160	75
160 ~ 170	76
170 ~ 180	76
180 ~ 190	77
190 ~ 200	77
200 ~ 210	78
210 ~ 220	78
220 ~ 230	78
230 ~ 240	79
240 ~ 250	79
250 ~ 260	80
260 ~ 270	80
270 ~ 280	80
280 ~ 290	81
290 ~ 300	81

Other Properties	
Photoelastic Constant β nm/(cm ³ 105Pa)	1.88
Specific Gravity d	3.60
Remarks	

Temperature Coefficients of Refractive Index												
Range of Temperature (°C)	$\Delta n_{rel} / \Delta T$ (10 ⁻⁶ K ⁻¹)											
	1550	t	r	C	C'	d	e	F	F'	g	h	i
-80 ~ -60	1.5	1.6	1.8	1.9	1.9	2.2	2.3	2.5	2.5	2.8	3.1	3.6
-60 ~ -40	1.3	1.5	1.8	1.8	1.9	2.0	2.1	2.3	2.4	2.7	3.0	3.5
-40 ~ -20	1.3	1.5	1.7	1.8	1.8	2.0	2.1	2.3	2.4	2.8	3.0	3.5
-20 ~ 0	1.3	1.5	1.8	1.9	1.9	2.0	2.2	2.4	2.5	2.8	3.1	3.7
0 ~ 20	1.5	1.6	1.9	1.9	2.0	2.1	2.2	2.5	2.5	3.0	3.3	3.8
20 ~ 40	1.6	1.7	2.0	2.1	2.1	2.2	2.4	2.7	2.7	3.0	3.4	4.0
40 ~ 60	1.6	1.8	2.1	2.2	2.2	2.4	2.6	2.9	2.9	3.3	3.6	4.2
60 ~ 80	1.8	2.0	2.3	2.4	2.4	2.5	2.7	3.0	3.0	3.4	3.7	4.4
80 ~ 100	1.9	2.1	2.4	2.5	2.5	2.7	2.9	3.2	3.2	3.6	3.9	4.6
100 ~ 120	2.1	2.2	2.5	2.7	2.7	2.8	3.0	3.3	3.4	3.7	4.1	4.8
120 ~ 140	2.1	2.3	2.6	2.8	2.8	3.0	3.1	3.5	3.5	3.9	4.3	4.9
140 ~ 160	2.2	2.4	2.7	2.9	2.9	3.1	3.2	3.6	3.6	4.0	4.5	5.2
160 ~ 180	2.3	2.6	2.8	3.0	3.1	3.2	3.4	3.8	3.8	4.2	4.6	5.3

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